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=> d his

     (FILE 'HOME' ENTERED AT 18:16:10 ON 28 MAR 2007)
     FILE 'REGISTRY' ENTERED AT 18:16:37 ON 28 MAR 2007
L1       1 S 7664-41-7
L2       1 S 1314-23-4
L3       5 S 1305-78-8 OR 1309-48-4 OR 1314-36-9 OR 1314-37-0 OR 12024-21-4
L4       5 S 14265-44-2 OR 14808-79-8 OR 1313-27-5 OR 1303-86-2 OR 1314-35-8
L5       6 S 1309-37-1 OR 1344-28-1 OR 7631-86-9 OR 12055-23-1 OR 13463-67-7
           OR 18282-10-5
     FILE 'CA' ENTERED AT 18:27:55 ON 28 MAR 2007
L6    1661 S (L1 OR NH3 OR AMMONIA)(4A)(SENSOR OR DETECTOR OR (SENSITIVE OR
           DETECTION OR ANALYSIS)(2A)(FILM OR LAYER OR MATERIAL OR ELEMENT))
L7      36 S L6 AND(L2 OR ZIRCONIA OR ZRO2 OR (ZIRCONIUM OR ZR)(1A)(OXIDE OR
           DIOXIDE OR OXYNITRATE))
L8     174 S L6 AND(L4 OR PO42 OR PO43 OR SO42 OR PHOSPHATE OR SULFATE OR MOO3
           OR MOLYBDENUM OXIDE OR MOLYBDATE OR WO3 OR TUNGSTEN OXIDE OR BORON
           OXIDE OR B2O3)
L9     288 S L6 AND(L5 OR (FERRIC OR IRON OR TIN OR HAFNIUM OR TITANIUM OR
           SILICON OR ALUMINUM)(1A)(OXIDE OR DIOXIDE OR TRIOXIDE) OR SNO2 OR
           HFO2 OR TIO2 OR FE203 OR AL203 OR SIO2 OR ALUMINA OR SILICA)
L10     35 S L6 AND L3
L11     59 S L8 AND L9
L12      9 S L6 AND SOLID(3A)(ACID OR ACIDIC)
L13  49804 S (GAS OR VAPOR OR VOLATILE)(4A)(SENSOR OR DETECTOR OR (SENSITIVE
           OR DETECTION OR ANALYSIS)(2A)(FILM OR LAYER OR MATERIAL OR
           ELEMENT))
L14   2630 S L13 AND(L2 OR ZIRCONIA OR ZRO2 OR (ZIRCONIUM OR ZR)(1A)(OXIDE OR
           DIOXIDE OR OXYNITRATE))
L15   2307 S L13 AND(L4 OR PO42 OR PO43 OR SO42 OR PHOSPHATE OR SULFATE OR
           MOO3 OR MOLYBDENUM OXIDE OR MOLYBDATE OR WO3 OR TUNGSTEN OXIDE OR
           BORON OXIDE OR B2O3)
L16  10162 S L13 AND(L5 OR (FERRIC OR IRON OR TIN OR HAFNIUM OR TITANIUM OR
           SILICON OR ALUMINUM)(1A)(OXIDE OR DIOXIDE OR TRIOXIDE) OR SNO2 OR
           HFO2 OR TIO2 OR FE203 OR AL203 OR SIO2 OR ALUMINA OR SILICA)
L17   1139 S L14,L16 AND L15
L18    280 S L14 AND L15
L19    126 S L18 AND L3
L20     10 S L17 AND SOLID(3A)(ACID OR ACIDIC)
L21    234 S L7,L10-12,L19-20
L22    176 S L21 AND PY<2004
L23     22 S L21 NOT L22 AND PATENT/DT
L24    198 S L22-23

=> d bib,ab,kwic l24 1-198

L24  ANSWER 25 OF 198  CA  COPYRIGHT 2007 ACS on STN
AN   140:280330  CA
TI   Ammonia sensor
IN   Nishiyama, Hiroyuki; Kakimoto, Shiro; Inoue, Ryuji; Yokoi, Hitoshi;
     Ishida, Noboru; Oshima, Takafumi; Sugaya, Satoshi; Imaeda, Koichi;
     Hattori, Tadashi; Satsuma, Atsushi
PA   NGK Spark Plug Co. Ltd., Japan
SO   Eur. Pat. Appl., 39 pp.
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PI EP 1403637 A1 20040331 EP 2003-256022 20030925
US 2004132202 A1 20040708 US 2003-669660 20030925
PRAI JP 2002-279680 A 20020925
JP 2003-51346 A 20030227
JP 2003-275327 A 20030716
JP 2003-326576 A 20030918
AB In an **ammonia sensor**, lead portions are provided on an insulating substrate; a pair of comb-shaped electrodes are connected to the lead portions, resp.; a sensitive layer is provided on the comb-shaped electrodes; and a protective layer is provided on the sensitive layer. In particular, the **sensitive layer** is formed of a **gas-sensitive** raw **material** predominantly contg. **ZrO2** and contg. at least W in an amt. of 2 to 40% as reduced to **WO3**.

L24 ANSWER 40 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 138:257681 CA
TI Solid state potentiometric gaseous oxide sensor
IN Wachsman, Eric D.; Azad, Abul Majeed
PA University of Florida, USA
SO PCT Int. Appl., 58 pp.
PI WO 2003027658 A1 20030403 WO 2002-US31041 20020930
US 2003066519 A1 20030410 US 2001-966240 20010928
PRAI US 2001-966240 A 20010928
AB A solid state electrochem. cell for measuring the concn. of a component of a gas mixt. includes a 1st semiconductor electrode and a 2nd semiconductor electrode formed from 1st and 2nd semiconductor materials, resp. The materials are selected so as to undergo a change in resistivity upon contacting a gas component, such as CO or NO. An electrolyte is provided in contact with the 1st and 2nd semiconductor electrodes. A ref. cell can be included in contact with the electrolyte. Preferably, a voltage response of the 1st semiconductor electrode when exposed to the component is opposite in slope direction to that of the 2nd semiconductor electrode to produce a voltage response equal to the sum of the abs. values of the individual voltages generated. A combustion engine includes an emission sensor for measuring pollutants and a feedback and control system uses measured pollutant concns. to direct adjustment of engine combustion conditions.

L24 ANSWER 50 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 137:288170 CA
TI Poison resistant combustible **gas sensors** and method for warning of poisoning
IN Wang, Chuan-Bao; Tomasovic, Beth; Warburton, P. Richard; Wang, Annie Q.
PA Industrial Scientific Corporation, USA
SO U.S. Pat. Appl. Publ., 17 pp.
PI US 2002146352 A1 20021010 US 2001-771882 20010130
PRAI US 2001-771882 A3 20010130
AB A poison resistant combustible gas sensing element, a method for its prodn. and a method for detg. poisoning of the element. The element includes an elec. heating element, an inner layer coated on the elec. heating element and contg. a precious metal catalyst supported on a porous oxide, the precious metal catalyst catalyzing combustion of a combustible gas to be detected by the element, and an outer layer

overlaying the 1st layer, and contg. a catalytic compd. capable of trapping gases which poison the precious metal catalyst, the catalytic compd. being supported on a porous oxide.

L24 ANSWER 67 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 136:30868 CA
TI NOx sensors based on interfacing yttria stabilized **zirconia** with p and n-type semiconducting oxides
AU Grilli, Maria Luisa; Di Bartolomeo, Elisabetta; Traversa, Enrico
CS Dipartimento di Scienze e Tecnologie Chimiche, Universita di Roma "Tor Vergata", Rome, 00133, Italy
SO Key Engineering Materials (**2002**), 206-213(Pt. 2, Euro Ceramics VII), 1243-1246
AB Electrochem. NOx sensors based on coupling yttria stabilized **zirconia** (YSZ), an O-ion conductor, with different semiconducting oxides as auxiliary phase were studied. Nanosized LaFeO3 perovskite-type oxide, a p-type semiconductor, and n-type **WO3** were used as auxiliary phasesbecause of their NO2 sensing properties in resistive-type devices. LaFeO3 or **WO3** thick films were deposited using a screen printing oil on one side of the solid-electrolyte pellets. The sensors were fully exposed to the same atm. EMF. , Polarization curves, amperometric and electrochem. impedance spectroscopy (EIS) measurements were performed in air and at different concns. of NO2 in air, at selected temps.

L24 ANSWER 78 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 133:304983 CA
TI A thermocatalytic **sensor** for selective determination of **ammonia** in gas media
AU Demenchuk, E. Yu.; Khamrakulov, T. K.
CS Sochi Research Center of the Russian Academy of Sciences, Sochi, Russia
SO Industrial Laboratory (Diagnostics of Materials) (Translation of Zavodskaya Laboratoriya, Diagnostika Materialov) (**2000**), 65(11), 697-698
AB A selective thermocatalytic **sensor** for automatic anal. of **NH3** is developed. The selectivity of detn. is provided by the use of catalysts based on transition-metal oxides that exhibit different activity toward the gas-mixt. components. The **sensor** allows detn. of **NH3** in gas media over a wide range of concn. and temp. with an accuracy <4.6%.

L24 ANSWER 80 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 133:197609 CA
TI Bar-type NOx **gas sensor** having **WO3** sensing film
IN Kim, Tae Song; Jung, Hyung Jin; Jung, Chong Hak
PA Korea Institute of Science and Technology, S. Korea
SO U.S., 13 pp.
PI US 6113859 A 20000905 US 1998-18802 19980204
PRAI US 1998-18802 19980204
AB A plate-type NOx **gas sensor** having a **WO3** sensing film which are capable of preventing temp. variation of a sensing thin film depending on gas flow to decrease heat loss thereof, whereby extending the life span of batteries of a portable **gas sensor**. The plate-type NOx **gas sensor** includes a Pt thin film electrode formed on a front surface of an alumina substrate, a **tungsten oxide** thin film for sensing NOx gas deposited on the front surface of the substrate on which the Pt thin

film electrode is formed, a heater formed on a back surface of the alumina substrate for holding a portion of the **tungsten oxide** thin film for sensing NOx gas within a predetd. temp. range, a conducting wire for connecting between the Pt thin film electrode and the heater and a sheet made of at least one material selected from a group composed of Al2O3, mullite, cordierite, magnesia and **zirconia**, coated on the back surface of the substrate on which the heater is formed, for burying completely the heater from an exterior atm. to protect the heat dissipation. The NOx **gas sensor** may be fabricated as a bar type and also have a catalytic layer on the sensing layer to enhance the sensing characteristics of the sensor.

L24 ANSWER 82 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 133:114317 CA
TI Method and device for ammonia detection
IN Kita, Shinji; Inoue, Ryuji
PA Ngk Spark Plug Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 18 pp.
PI JP 2000193639 A 20000714 JP 1998-370499 19981225
PRAI JP 1998-370499 19981225
AB The title device can be used for detection of ammonia in a wide concn. range and gives precise results even for gas samples contg. nitrogen oxide. The device comprises an elec. O concn. cell having O permeable electrodes formed on both sides of an O ion conductive solid electrolyte substrate, and an O pump. The ammonia concn. is detd. based on the elec. current passing through the O pump while the emf of the concn. cell reachs the preset value.

L24 ANSWER 84 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 133:26268 CA
TI Resistance-based gas sensors with **WO3-TiO2** active layer for determination of NOx in automobile exhaust gases
IN Kornely, Susanne; Seidl, Monika; Meixner, Hans; Fleischer, Maximilian; Lampe, Uwe; Mrotzek, Christine; Pohle, Roland; Giber, Janos
PA Siemens Aktiengesellschaft, Germany
SO Eur. Pat. Appl., 10 pp.
PI EP 1008847 A2 20000614 EP 1999-123914 19991201
PRAI DE 1998-19856369 A 19981207
AB A resistive gas sensor, esp. suitable for detection of NO, NO2, NH3, or hydrocarbons in an automobile exhaust gas, consists of a gas-sensitive layer, a corresponding measuring electrode, and a heating unit, in which the gas-sensitive layer consists of a mixt. of **WO3** and **TiO2**, which is prepd. by crystg. **WO3** around a nucleus of **TiO2**. The gas-sensitive layer (5-50 μm thick), which contains ≥50 wt.% **WO3**, can be prepd. by the sol-gel method using tungstic acid salt (M2WO4, in which M = H, Na, K, or NH4) precursors, or can be prepd. from Ti(OC3H7)4 and WCl6 precursors. The gas sensor is also connected to an oxidn. catalyst consisting of an impregnated metal oxide support (e.g., γ-Al2O3, **SiO2**, or **TiO2** impregnated with a noble metal, such as Pt, Rh, Pd, or Ir) or a pure metal oxide catalyst (e.g., **TiO2**-V2O5 contg. CuO or MnO2).

L24 ANSWER 85 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 133:8337 CA

TI Gas-sensing characteristics of modified-**MoO3** thin films using Ti-overlayers for **NH3** gas **sensors**
AU Imawan, C.; Solzbacher, F.; Steffes, H.; Obermeier, E.
CS Microsensor and Actuator Technology (MAT), Technical University of Berlin, Berlin, D-13355, Germany
SO Sensors and Actuators, B: Chemical (**2000**), B64(1-3), 193-197
AB Thin films of modified **MoO3** using Ti-overlayers were deposited by magnetron sputtering. Gas-sensing characteristics of the sensor element and the effect of Ti-overlayers and their prepn. parameters on the gas-sensitive properties of the sensors were examd. The Ti-overlayer very effectively enhanced sensitivity and selectivity to NH3 gas. Sensor sensitivity was strongly affected by process parameters and thickness of the sputtered Ti-overlayers. The sensor, with a 50 nm Ti-overlayer thickness, featured the highest gas sensitivity toward NH3, while its cross-sensitivity to other gases such as H2, SO2 and CO was comparatively small. Sensor operating temp. is 200°.

L24 ANSWER 87 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 132:302577 CA
TI Desorption behavior of ammonia from TiO2-based specimens - ammonia sensing mechanism of double-layer sensors with TiO2-based catalyst layers
AU Shimizu, Y.; Okamoto, T.; Takao, Y.; Egashira, M.
CS Department of Materials Science and Engineering, Faculty of Engineering, Nagasaki University, Nagasaki, Japan
SO Journal of Molecular Catalysis A: Chemical (**2000**), 155(1-2), 183-191
AB Desorption behavior of gases from the NH3-preadsorbed catalyst and sensing materials used for double-layer semiconductor **NH3 sensors** was studied under different adsorption and desorption conditions. The 0.5 Ir/TiO2 catalyst material was found to exhibit mild activity for NH3 oxidn. and high activity for reducing NO to N2 in an atm. contg. NH3 and O2. This nature was considered to be effective for reducing the interference from NOx at the vicinity of the interface between the catalyst layer and the In2O3 sensing layer doped with 5 mol% MgO. The redn. of the interference led to high NH3 sensitivity and a normal response to give a resistance decrease upon exposure to NH3 even at higher temps. The abnormal response of a double-layer sensor with a 0.5 Pt/TiO2 catalyst layer to give a resistance increase upon exposure to NH3 esp. at higher temps. was confirmed to arise from its high NH3 oxidn. activity and low NO redn. activity.

L24 ANSWER 91 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 132:175058 CA
TI Semiconductor **gas sensor**
IN Inoue, Ryuji; Fuma, Tomoihiro; Ohshima, Takafumi
PA NGK Spark Plug Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
PI JP 2000055854 A 20000225 JP 1998-226917 19980811
PRAI JP 1998-226917 19980811
AB The title semiconductor oxide **gas sensor** is used for anal. of atm. gas based on the measurement of the elec. resistivity variation corresponding to the gas concn. The sensor is made by forming a pair of electrodes on the surface of a ceramic substrate and a semiconductor

oxide member disposed on the substrate connected with the electrodes and having its elec. resistivity vary corresponding to the gas concn. A diffusion control layer is on the substrate is used to control the passage of the sample gas diffusing from atm. to the semiconductor oxide. The diffusion control layer is made by spraying particles of an insulative material on the semiconductor oxide surface to a thickness of 0.1-0.3 mm.

L24 ANSWER 103 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 130:46712 CA
TI Study on NH3 sensing properties of **WO3-SiO2** materials prepared by sol-gel method
AU Wang, Xusheng; Zhang, Liangying; Yao, Xi; Shimanoe K; Sakai G; Miura N; Yamazoe N
CS Electronic Materials Research Laboratory, Xi'an Jiaotong University, Xi'an, 710049, Peop. Rep. China
SO Gongneng Cailiao (**1998**), 29(3), 276-280
LA Chinese
AB Gas sensing materials of **WO3** + x (wt%) **SiO2** (x = 0, 5, 10, 20) were prepd. by sol-gel method, its microstructure was characterized by XRD, AFM, XPS, and surface area analyzer. It was obsd. that the nanosized monoclinic phase of **WO3** was formed, and the grain size decreased with the increase of **SiO2** amt. The NH3 sensing properties of the materials were measured in conventional flow app. It showed that the **WO3** + 5 wt% **SiO2** sensing element, which was superior to pure **WO3** element, gave fairly good response to NH3 above 350°C.

L24 ANSWER 105 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 129:334679 CA
TI Formation of **SnO2** film-type **sensor** device for **NH3** gas determination
AU Sobukawa, Tadashi; Tamura, Katsuhiro; Kaneko, Ayumi; Kawakami, Teruei; Fujita, Yoshinori; Katoh, Shingo; Atsumi, Hiroyasu; Inagaki, Norihiro
CS Mater. Technol. Dep., Shizuoka Ind. Res. Inst. Shizuoka Prefect., Shizuoka, 421-1298, Japan
SO Shizuoka-ken Shizuoka Kogyo Gijutsu Senta Kenkyu Hokoku (**1998**), 43, 59-65
LA Japanese
AB Sensor devices which were composed of a **SnO2** film and a catalyst were investigated for detn. of ammonia gas. A combination of the **SnO2** film which was deposited by vacuum evapn. with catalysts such as **WO3**-Pt, **WO3**-Pd, Cr2O3-Pt, Cr2O3-Pd shows good sensitivity toward ammonia gas. The **SnO2** Sensor device with **WO3**-Pt, **WO3**-Pd, Cr2O3-Pt, Cr2O3-Pd as a catalyst show good stability for detn. of ammonia gas in temp. range of 80 to 300°, and detect ammonia mols. of less than 1000 ppm concn. Consequently, the **SnO2** sensor device with **WO3**-Pt, **WO3**-Pd, Cr2O3-Pt, Cr2O3-Pd as a catalyst is a good **sensor** for detn. of **ammonia** gas.

L24 ANSWER 107 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 129:254083 CA
TI **Ammonia** gas **sensor** and **ammonia** gas detection
IN Yoon, Don-Hyon; Lee, Kyu-Jon; Kong, Chul-Han; Hong, Hyun-Ki; Kim, Sun-Yul
PA LG Electrics Co., Ltd., S. Korea

SO Jpn. Kokai Tokkyo Koho, 6 pp.
PI JP 10221286 A 19980821 JP 1998-11125 19980123
PRAI KR 1997-2253 A 19970127
AB The title sensor comprises a substrate, a heater formed with pattern on the lower portion of the substrate, a 1st and a 2nd electrodes formed on the upper portion of the substrate with specific pattern, a sensing point formed on a specific region on the 1st electrode, and a 2nd sensing point contg. catalyst formed on a specific region of the 2nd electrode. The 1st sensing point is made by using **SnO2**, **WO3**, and Fe oxide (Fe2O3 or Fe3O4). The 2nd sensing point is made of **SnO2**, **WO3**, and Pt.

L24 ANSWER 109 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 129:152427 CA
TI Highly sensitive and selective **ammonia** gas **sensor**
AU Yun, Dong Hyun; Kwon, Chul Han; Hong, Hyung-Ki; Kim, Seung-Ryeol; Lee, Kyuchung; Song, Ho Geun; Kim, Ji Eon
CS Devices and Materials Laboratory, LG Corporate Institute of Technology, Seoul, 137-140, S. Korea
SO Transducers 97, International Conference on Solid-State Sensors and Actuators, Chicago, June 16-19, 1997 (**1997**), Volume 2, 959-962 Publisher: Institute of Electrical and Electronics Engineers, New York, N. Y.
AB We have fabricated and examd. an **ammonia** gas **sensor** with high sensitivity using thick-film technol. Sensing material of the gas sensor is FeOx-**WO3**-**SnO2** oxide semiconductor. The sensor exhibits resistance increase upon exposure to low concn. of ammonia gas. The resistance of the sensor is decreased, on the other hand, for exposure to reducing gases such as Et alc., methane, propane and carbon monoxide. We have proposed and investigated a novel method for detecting ammonia gas quite selectively by using a sensor array with two sensing elements which contains an **ammonia** gas **sensor** and a compensation element. The compensation element is a Pt-doped **WO3**-**SnO2** gas sensor which shows opposite direction of resistance change in comparison with the **ammonia** gas **sensor** upon exposure to **ammonia** gas. Excellent selectivity has been achieved using the sensor array with two sensing elements.

L24 ANSWER 121 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 127:75215 CA
TI Ammonia sensing properties of **WO3**-based specimens - effect of catalytic activities
AU Shimizu, Yasuhiro; Kawasoe, Atsushi; Takao, Yuji; Makoto, Egashira
CS Department of Materials Science and Engineering, Faculty of Engineering, Nagasaki University, Nagasaki, 852, Japan
SO Proceedings - Electrochemical Society (**1997**), 96-27(Ceramic Sensors), 117-122
AB The NH3-sensing properties of single-layer **WO3**-based sensors and double-layer sensors of an In2O3-MgO layer coated with different **WO3**-based catalyst layers were discussed based on the oxidn. and desorption behavior of NH3 preabsorbed on **WO3**-based specimens. **WO3**-based specimens tended to exhibit lower catalytic activity for NH3 oxidn. compared with Al2O3-based specimens. 0.5Ir/**WO3** exhibited highest activities both for NH3 oxidn. and for NOx redn. among the specimens tested, and they

exhibited the highest NH3 sensitivity as a single-layer sensor.

L24 ANSWER 133 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 126:69370 CA
TI Sensing characteristics and mechanism of hydrogen sulfide sensor using stabilized **zirconia** and oxide sensing electrode
AU Miura, Norio; Yan, Yongtie; Lu, Geyu; Yamazoe, Noboru
CS Department of Materials Science and Technology, Graduate School of Engineering Sciences, Kyushu University, Kasuga-shi, Fukuoka, 816, Japan
SO Sensors and Actuators, B: Chemical (**1996**), B34(1-3), 367-372
AB A new type of electrochem. sensors for H2S was developed by combining a Y2O3-stabilized **zirconia** (YSZ) tube with a sensing oxide layer of **WO3**. The sensor device composed was an electrochem. cell of the form, air, Pt|YSZ|**WO3**, Pt, H2S (+air). This device was found to respond well to 0.2-25 ppm H2S in air at 400°C, with acceptable response rates. The EMF of the sensor was linearly related to the logarithm of the H2S concn. with a slope of -74 mV/decade. The EMF was hardly affected by the coexistence of CO2 and water vapor. Based on the measurements of anodic and cathodic polarization curves, the H2S sensing signal was suggested to reflect the mixed potential at the **zirconia/WO3** interface. The possibility of amperometric detection by using the present device was also suggested.

L24 ANSWER 146 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 122:321332 CA
TI Sensor for determining the gradient of ammonia concentration in waste gases
IN Schmelz, Helmut
PA Siemens A.-G., Germany
SO Eur. Pat. Appl., 13 pp.

PI	**EP 652435**	**A2**	**19950510**	**EP 1994-116919**	**19941026**
	US 5546004	**A**	**19960813**	**US 1994-334860**	**19941104**
PRAI	DE 1993-4337663	A	19931104		

AB The concn. of NH3 is detd. on the basis of cond. in flue gas and exhaust gas streams to be contacted with catalysts, using sensors from **TiO2** and ≥1 of **WO3**, **MoO3**, V2O5, and VxMoyO32-z where x+y≤12, x,y≥1 and z≤1.

L24 ANSWER 148 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 122:22632 CA
TI **MoO3/TiO2** and Bi2MoO6 as **ammonia sensors**
AU Raju, A. R.; Rao, C. N. R.
CS Solid State and Structural Chemistry Unit and Materials Research Centre, Indian Institute of Science, Bangalore -, 560 012, India
SO Sensors and Actuators, B: Chemical (**1994**), 21(1), 23-6
AB **Ammonia sensors** based on catalytic oxides such as V2O5, **MoO3** and α-, β- and γ-bismuth **molybdates** have been investigated. **MoO3** (15 mol%) supported on **TiO2** and γ-Bi2MoO6 both exhibit satisfactory sensing characteristics for NH3, with a reasonably low working temp. (500-575 K) and a min. detection limit of 10 ppm. Humidity has no measurable effect on the performance of these materials. ESR studies show the formation of Mo5+ species on these oxides on contact with NH3.

L24 ANSWER 154 OF 198 CA COPYRIGHT 2007 ACS on STN

AN 120:288820 CA
TI High **ammonia** sensitive semiconductor gas **sensors** with double-layer structure and interface electrodes
AU Takao, Yuji; Miyazaki, Kenichi; Shimizu, Yasuhiro; Egashira, Makoto
CS Fac. Eng., Nagasaki Univ., Nagasaki, 852, Japan
SO Journal of the Electrochemical Society (**1994**), 141(4), 1028-34
AB NH3 gas sensing properties of a single-layer In2O3 doped with 5 mol percent (m/o) MgO [In2O3-MgO (5 m/o)] sensor and some double-layer sensors with a catalyst layer on it were studied. The single-layer sensor with electrodes at the innermost region exhibited low NH3 sensitivity due to interference from NOx produced as a result of complete oxidn. of NH3, esp. at temps. >530°. A slight enhancement in sensitivity was achieved by coating the In2O3-MgO (5 m/o) sensing layer with a catalyst layer. A more remarkable sensitivity enhancement was realized by changing the electrode position of double-layer sensors from the innermost to the interface between the sensing and the catalyst layer, esp. when TiO2 loaded with 0.5 wt percent Ir was employed as a catalyst layer. Based on the catalytic activity of the sensing and the catalyst materials, possible **NH3** sensing mechanism of **sensors** is discussed.

L24 ANSWER 157 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 119:261582 CA
TI carbon dioxide-sensing characteristics of tin dioxide element modified by lanthanum oxide
AU Mizuno, Noritaka; Yoshioka, Tetsunori; Kato, Kazuyoshi; Iwamoto, Masakazu
CS Catalysis Research Centre, Hokkaido University, Sapporo, 060, Japan
SO Sensors and Actuators, B: Chemical (**1993**), 13(1-3), 473-5
AB When an SnO2 element is impregnated with an aq. soln. of metal nitrate or acetate by coating with a brush and calcining at 773 K for 5 h, the element shows sensitivity to ppm-levels of CO2. Among the elements, the La2O3-loaded SnO2 element is found to show promising sensing properties to CO2 in dry air at 673 K, i.e., rather high sensitivity and quick response. The sensing properties depend on the operation temp. and the amt. of La2O3 loaded: the resp. optima are 673 K and 4.2 wt.%. The sensitivity monotonically increases with the concn. of CO2 in the range 0-2080 ppm.
IT **1305-78-8**, Calcium oxide, uses 1309-37-1, Ferric oxide, uses **1309-48-4**, Magnesium oxide, uses **1313-27-5**, **Molybdenum oxide** (**MoO3**), uses **1314-23-4**, **Zirconium dioxide**, uses (tin oxide loaded with, for carbon dioxide sensor, characterization of)

L24 ANSWER 168 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 117:10431 CA
TI **Ammonia**-selective gas **sensor** using **tin oxide** semiconductor
AU Mitsuhashi, Hirokazu; Suzuki, Kengo; Nakane, Mashanori
CS New Cosmos Electr. Co., Ltd., Osaka, 532, Japan
SO Chemistry Express (**1992**), 7(5), 409-12
LA Japanese
AB Effects of PbOx and V2O5 addn. to the **tin oxide** semiconductor were examd. in order to develop an **NH3**-selective gas **sensor**. Selectivity of NH3 to EtOH was improved when the **tin oxide** inner layer was covered with

WO3-Al2O3 catalyst outer layer.

L24 ANSWER 171 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 116:257991 CA
TI Metal oxide semiconductor gas sensors
IN Yamazoe, Noboru; Miura, Norio; Nakayama, Chiaki; Ando, Masami
PA Toto, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
PI JP 04029049 A 19920131 JP 1990-135787 19900525
PRAI JP 1990-135787 19900525
AB The title sensors use changes of elec. resistance accompanied with gas-adsorption and -desorption with metal oxide semiconductors which comprise metal oxide (as main component) of **SnO2**, **TiO2**, Fe2O3, In2O3, NiO, CoO, ZnO, or MgFe2O4; and additives of catalyst of V2O5, P2O5, **MoO3**, Cs2O, or **WO3**, or Ru, Pt, or Ag. The sensors are useful for detection of basic gases, esp., NH3. Thus, 5 ppm **NH3** was detected by a **sensor** prepd. from **SnO2** and V2O5.

L24 ANSWER 172 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 116:65918 CA
TI Measurement of ammonia with the Solidox-ammonia system
AU Haefele, E.; Kaltenmaier, K.; Schoenauer, U.
CS Roth-Tech. G.m.b.H. und Co., Gaggenau, D-7560, Germany
SO Sensors and Actuators, B: Chemical (**1991**), B4(3-4), 529-31
AB The phys. principles are described, of an NH3 detn. method, using the Solidox **ZrO2** sensor which is comparable to the lambda sensor. One of the sensor electrodes is sensitive only to NH3 and the elec. potential varies proportionally to the NH3 concn. in the gas phase. Interferences of other gases like O, H2O, and CO2 can be eliminated. The accuracy in the low range (□20 ppm) is ±2 ppm.

L24 ANSWER 173 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 115:141454 CA
TI Application of the **zirconium dioxide** sensor in determination of pollutant gases
AU Haefele, E.; Kaltenmaier, K.; Schoenauer, U.
CS Roth-Tech. G.m.b.H. und Co., Gaggenau, D-7500, Germany
SO Sensors and Actuators, B: Chemical (**1991**), B4(3-4), 525-7
AB The **ZrO2** sensor were used to det. the O content in gases. The same principle may be used for quantification of reducing gases. The electrode material is chem. modified. The potential of these electrodes in direct phys. contact with such a gas mixt. is proportional to the quantity of reducing gas present. This effect is a result of catalytic and adsorptive interactions between the gas and the sensing electrode. Even in trace amts., gases such as CO or NH3 can be detected and quantified. This new sensor type can be used for detg. gas components.

L24 ANSWER 184 OF 198 CA COPYRIGHT 2007 ACS on STN
AN 106:95206 CA
TI **Gas sensors**
IN Moseley, Patrick Timothy
PA United Kingdom Atomic Energy Authority, UK
SO Brit. UK Pat. Appl., 16 pp.

PI **GB 2166247** **A** **19860430** **GB 1985-26063** **19851022**
PRAI GB 1984-27004 A 19841025
AB A **gas sensor** includes a **gas-sensitive material** which exhibits a response in the form of an increase or a decrease in an elec. property (e.g., resistance, capacitance, and/or impedance) of the material in the presence of a 1st gas and which exhibits the opposite response in the presence of a 2nd gas. A pair of electrodes may be provided in contact with the material. The **gas-sensitive materials** may be selected from various oxides. A table is provided giving the direction of the change in the resistance of various oxides in the presence of various gases. The sensor may be used to detect H2, C2H4, NH3, CO2, O2, C3H8, CH4, CO, Cl2, NO2, SO2, or H2S.

=> log y
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